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ORIGINAL PAPER

Comment on "The case for minimax-TD"

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Abstract
In recent papers, Darlington identifies minimax-TD as the best single-winner voting method. He mentions two criteria allegedly met by minimax-TD and violated by the Schulze method. In this comment, however, I will show that also minimax-TD violates these criteria.

Keywords Minimax · Voting systems · Condorcet · Voting anomalies

JEL Classifications D71 · D72

1 Introduction

In the papers "Are Condorcet and Minimax Voting Systems the Best?" (Darlington, 2018) and "The case for minimax-TD" (Darlington, 2023), the author identifies minimax-TD as the best single-winner voting method, while the Schulze (2011, 2018) method comes in a close second ("essentially tied" according to Darlington (2023)). He mentions two criteria met by the Schulze method and violated by minimax-TD (preference inversion criterion, independence of clones) (Darlington, 2018) and two criteria allegedly met by minimax-TD and violated by the Schulze method (mono-add-top, consistency) (Darlington, 2023). I will show that also minimax-TD violates mono-add-top and consistency.

2 Mono-add-top

This criterion states that it must not happen that "X becomes a loser when newly added voters all rank X at the top" (Darlington, 2023). Woodall (1997) introduces the name mono-add-top for this criterion. The following example shows that

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minimax-TD violates mono-add-top: 9 ACBD, 4 CBAD, 8 DBAC, 4 DCBA. The Smith set is ABC. The largest loss of A is 7. The largest loss of B is 9. The largest loss of C is 9. Thus, the winner of minimax-TD is A. However, when two ADBC voters are added, the Smith set is ABCD. The largest loss of A is 5. The largest loss of B is 7. The largest loss of C is 11. The largest loss of D is 3. Thus, the winner of minimax-TD is D. So, the two ADBC voters switch the winner from A to D.

3 Consistency

A violation of the consistency criterion "occurs if a candidate can win in each of two or more districts, but lose if the districts are merged into one" (Darlington, 2023). It is well known that the consistency criterion and the Condorcet criterion are incompatible (Young, 1975). The example above shows that minimax-TD also violates consistency, since minimax-TD chooses A when the method is applied to the original situation and when it is applied to the two ADBC voters only, but not when it is applied to the new situation.

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Declarations

Conflict of interest The author declares no competing interests.

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